RDECOM

TARDEC

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

Advanced Planning Briefing for Academia

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Report Documentation Page

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Trivia

1) In the U.S. what percentage of physical sciences and engineering PhD's go to foreign students?

Roughly 50%

2) How much money did the Department of Defense award to Institutions of Higher Education in 2007?

2 Billion Dollars

Agenda

- Society of Automotive Engineers and the Army
- Mission and Vision
- Life Cycle Support Impacts
- Why APBA?
- Critical Thinking
- The Evolving Threat
- Transforming Processes
- TARDEC Funding & Manpower
- Workforce & Recruiting

Society of Automotive Engineers (SAE) and the Army

- **SAE founded in 1905 in response to need for**
  - Patent protection
  - Solutions to common technical design problems
  - Development of engineering standards
- **SAE assisted in developing technologies critical to the Armed Forces during WWI**
  - Critical engine and truck technologies
  - SAE & Army engineers developed 5-ton Class B Truck in 69 days
- **Engaged in a number of cooperative efforts during WWII**
  - Members volunteered to act as subject matter experts for the War Department
  - Participated in Ground Vehicle Transportation & Maintenance programs
- **Presently SAE is the "*Resource*" & TARDEC is the "*Bridge*" for military technology standards & insertion**
  - Department of Defense (DOD) & automotive standards set through committees
  - Solve engineering challenges posed by new technology
  - Weapon system and equipment maintenance

Tank Automotive Research, Development & Engineering Center (TARDEC)

MISSION: TARDEC is a major element of RDECOM and partner in the TACOM Life Cycle Management Command. As a full life-cycle engineering support provider-of-first-choice for all DOD ground combat and combat support weapons and vehicle systems, TARDEC develops and integrates the right technology solutions to improve Current Force effectiveness and provide superior capabilities for the Future Force.

VISION: Be the first choice of technology and engineering expertise for ground vehicle systems and support equipment — today and tomorrow.

TARDEC - Responsible for Research, Development and Engineering Support to ***2,800*** Army systems and many of the Army's and DOD's top joint warfighter development programs.

Life Cycle Support Impacts

TOTAL SYSTEMS in DEVELOPMENT: 14

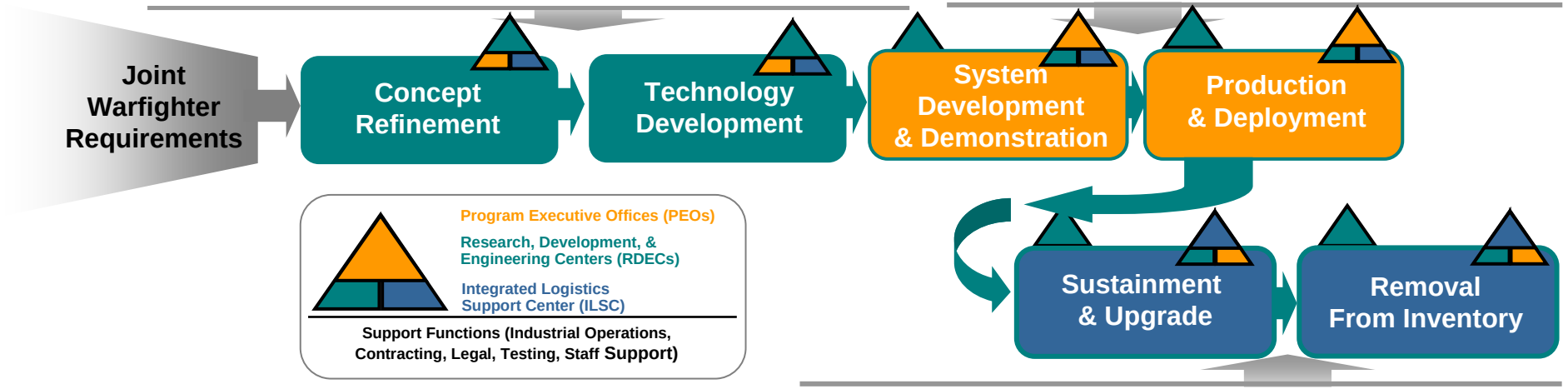
Examples

- VEHICLE ARMOR PROTECTION
- VISION PROTECTION
- JP-8 REFORMATION FOR ALT. POWER SOURCES
- POWER & THERMAL MANAGEMENT TECHNOLOGY
- PULSE POWER for EM and DE WEAPONS
- PULSE POWER FOR FCS
- KINETIC ENERGY ACTIVE PROTECTION SYSTEM
- HYBRID ELECTRIC FCS
- ADVANCED LIGHTWEIGHT TRACK
- ROBOTICS COLLABORATION
- NEAR AUTONOMOUS UNMANNED SYSTEMS
- NON-PRIMARY POWER SOURCES
- ROBOTIC VEHICLE TECHNOLOGIES FOR FCS
- FCS ARMOR DEVELOPMENT
- TACTICAL WHEELED VEHICLE SURVIVABILITY

SYSTEMS in PRODUCTION/DEVELOPMENT: 46

Examples

- FCS TECHNOLOGIES
- STRYKER
- ATLAS II
- MODULAR CAUSEWAY SYSTEM (MCS)
- BRIDGE ERECTION BOAT (BEB)
- RAPIDLY EMPLACED BRIDGE SYSTEM
- OBJECTIVE HIGH MOBILITY ENGINEERING EXCAVATOR
- MINEFIELD DETECTION SYSTEMS



FIELD ITEMS SUPPORTED: 2,800

Examples

- TANK AUTOMOTIVE (COMBAT, TACTICAL, CE/MHE)
- STRYKER, ABRAMS, BRADLEY, HERCULES
- M109, M9 ACE, M113 FMTV, HMMWV
- HET, HEMTT (ESP)
- TRAILERS & SEMI-TRAILERS, TRUCKS, RECOVERY VEHICLES
- CE, MHE
- BRIDGING PRODUCTS
- WATERCRAFT
- WATER, FUELS AND LUBRICANTS
- VEHICULAR AND MECHANICAL COUNTERMINE

TARDEC Engineers Provide Cradle-to-Grave Engineering Support

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

Why Hold an Advanced Planning Briefing for Academia?

- Form partnerships with more universities
- TARDEC's career and professional development needs
- Commitment to educating current & future workforce members
- National security, economic growth & globalization
- Expand collaboration with universities in our strategic thrusts & technology areas
- Bridge potential capability gaps
- Inform university faculty about the Army's ground vehicle research needs
- Establish programs to provide innovative research & development to meet critical Army needs through Small Business Innovation Research (SBIR), Cooperative Research and Development Agreements (CRADA), contracts and technical events (SAE, AUSA, etc.)

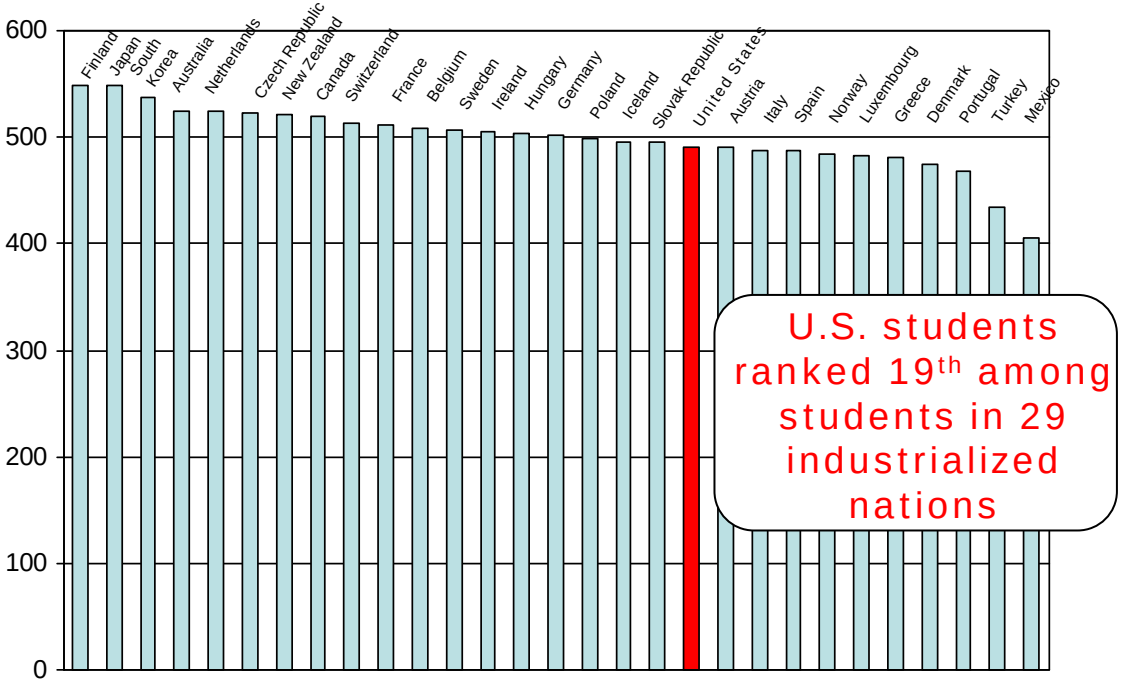
Critical Thinking

To preserve the United States' national strategic and economic security, we must optimize our knowledge-based resources, particularly in science and technology.

Science, Technology, Engineering and Mathematics (STEM) education is responsible for providing our country with three kinds of intellectual capital:

- –Scientists and engineers
- –Technologically proficient workers
- –Scientifically literate voters and citizens

Critical Thinking Skills in 15-year-olds



Source: *International Outcomes of Learning in Mathematics Literacy and Problem Solving: PISA 2003, Results From the U.S. Perspective: Highlights.* U.S. Dept. of Education, Center for Education Statistics

The Evolving Threat – An Enemy that Adapts & Learns

- **Asymmetrical Tactics**
- **Urban/Guerilla Warfare**
  - Hide in plain sight
  - Use of hostages
- **Insurgent Weaponry**
  - Improvised explosive devices
  - Rocket-propelled grenades
  - Blasting caps
  - Small arms
  - Anti-tank weapons
  - Biological and chemical weapons
  - Chlorine
  - Precision weapons
  - Automatic and self-loading rifles
  - Explosively formed projectiles
  - Advanced detonation electronics

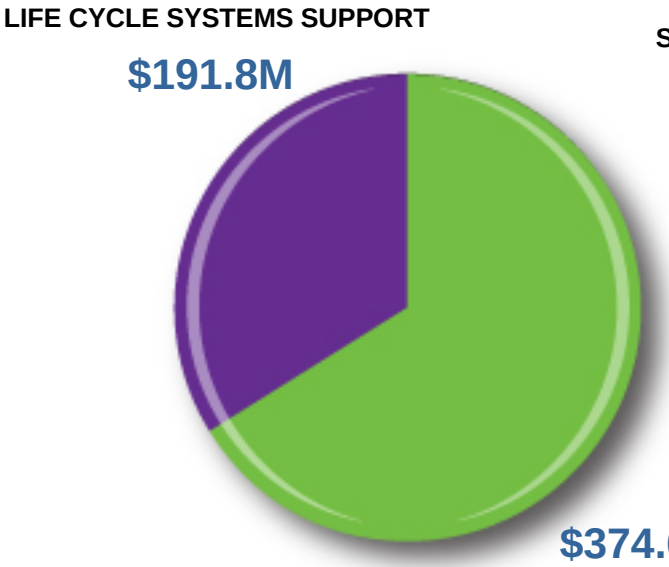
"…Insurgents are always 'seeking to achieve higher levels of effectiveness' and these new tactics are part of the normal 'evolution of sophistication.'"

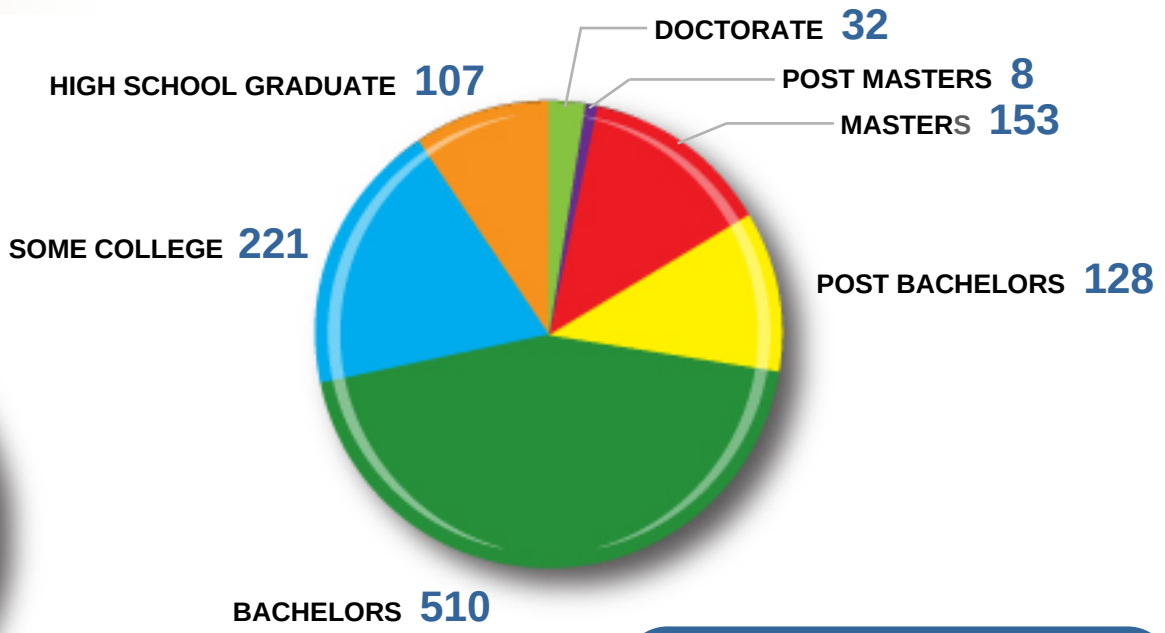
-- Associated Press

Transforming Processes to Speed Solutions to Soldiers

From	To
Serial Phased Milestones	Parallel Events Addressing Entire Full Lifecycle
Creating Information Age	Leveraging Information, Data & Expertise — *GLOBALIZATION*
Physical & Virtual Prototypes	Collaborative Product Commerce

TARDEC Funding & Manpower





FY08 Total Program $566.4M

**** Includes Congressional Adds ($157.7M)***

As of 31 MARCH 08

Civilian Employees 1159

- 73% E&S
- 25% Women
- 18% Minorities

Local / CREST Co-Ops 39

Temporary Students 5

Dept. Army / AMC Interns 9

Military (all Officers) 10

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TARDEC's Aggressive Recruiting Program

Co-Op & Intern Programs

- In place for over 20 years
- Currently 39 co-op students & 108 interns
- During 2001-2006, 67% of new workforce members recruited through co-op program
- TARDEC's co-op student retention rate is 95%
- 18 current Memorandums of Understanding with local universities
- In 2007, 126 associates were involved in higher education programs
  - 78% focused on emerging technology & global leadership curriculums

Other Hiring Mechanisms

- Science, Mathematics and Research for Transformation (SMART) Defense Scholarships – tuition, stipend; work for DOD after graduating
- Dept. of Army/U.S. Army Materiel Command Fellows Program
- Graduate/PhD students working on projects of interest to Army's critical technologies – using Cooperative Research Development Agreements or in conjunction with Automotive Research Center
- Engineers from automotive community joining TARDEC

Interested candidates can forward resumes to:

engineeringresumes@conus.army.mil

APBA Video